

Amendments to the Specification:

Please replace the paragraph beginning on page 3, line 1, with the following amended paragraph:

Referring to Fig. 6 specifically, in the vertical direction thereof, there are shown the respective states of the moving speed of the welding torch TV, the feeding speed of the welding wire WF, a short circuit detect signal A/S, a welding current I and a welding voltage V, whereas the horizontal axis thereof expresses time. In this illustration, as timings, TS0 TSO' designates a timing when a welding start signal is transmitted from the robot control unit 110 to the welding power supply device 105, while TS1 - TS5 TS1' - TS5' following TS0 TSO' stand for timings in the course of time respectively.

Please replace paragraph [0008], with the following amended paragraph:

Also, when receiving the welding start signal from the robot control unit 110, the welding power supply device 105 applies a no-load voltage V0 VO' into between the welding wire 101 and base metal 107..

Please replace paragraph [0009] with the following amended paragraph:

Then, at the timing TS1 TS1', if the welding wire 101 is contacted with the base metal 107, short circuit detect means (not shown) provided in the inside of the welding power supply device 105 outputs a short circuit signal A/S.

Please replace paragraph [0010] with the following amended paragraph:

This short circuit detect signal A/S is transmitted through the two-way communication S to the robot control unit 110 and thus the robot control unit 110 reduces and stops the robot

manipulator 109 immediately, so that, at the timing ~~TS2_TS2'~~, the operation of the robot manipulator 109 is caused to stop, that is, the speed of the welding torch 104 becomes zero.

Please replace paragraph [0012] with the following amended paragraph:

The period extending from the timing ~~TS1 to TS3~~TS1' to TS3' is a short circuit period and, in this period, during the time until the timing ~~TS2_TS2'~~ where the robot manipulator 109 reduces down to zero, the welding wire 101 is pressed against the base metal 107; but, from the timing ~~TS2_TS2'~~ on, since the operation of the robot manipulator 109 is reversed, the pressing amount of the welding wire 101 decreases and thus, at the timing ~~TS3_TS3'~~, the short circuit is removed.

Please replace paragraph [0013] with the following amended paragraph:

The timing, that is, the timing ~~TS3_TS3'~~ occurs at the time when the area of a triangle cde, which is shown by the line of the speed TV of the welding torch and expresses the lifting amount of the welding wire 101, exceeds the area of a triangle abc which is shown by the line of the speed TV of the welding torch for expressing the pressing amount of the welding wire 101.

Please replace paragraph [0014] with the following amended paragraph:

Here, when the initial short circuit occurs at the timing ~~TS1_TS1'~~, the welding power supply device 105 controls the welding current I at ~~I1~~I1', and then increases the current up to ~~I2~~I2' after passage of a given time and waits for the opening of the short circuit.

Please replace paragraph [0015] with the following amended paragraph:

As the first stage of the initial short circuit period, the welding current is controlled to I_1' which is set relatively low. The reason for this is to avoid a possibility that, owing to the initial short circuit, the leading end portion of the welding wire is heated due to Joule effect to melt the wire and thus, simultaneously with generation of the arc, the molten welding wire can spatter around to form spatters.

Please replace paragraph [0016] with the following amended paragraph:

Also, to change the current from I_1 to I_2 , I_1' to I_2' is to be able to apply energy enough to generate the arc when the short circuit is opened at the timing TS_3 TS_3 .

Please replace paragraph [0017] with the following amended paragraph:

When an arc is generated at the timing TS_3 TS_3 , the welding power supply device 105 actuates the wire feed motor 103 to accelerate the welding wire 101 toward the base metal 107, continues the acceleration until the speed of the welding wire 101 reaches a welding wire speed (not shown) for actual welding, and, after the welding wire speed reaches the welding wire speed for actual welding, continues the feeding of the welding wire at a constant speed.

Please replace paragraph [0019] with the following amended paragraph:

Referring to Fig. 6 specifically, in the vertical direction thereof, there are shown the respective states of the moving speed of the welding torch TV, the feeding speed of the welding wire WF and a welding output P, whereas the horizontal axis thereof expresses time. In this illustration, as timings, TE_0 TE_0' designates a timing when a welding end signal is transmitted

from the robot control unit 110 to the welding power supply device 105, while TE1 - TE4 TE1' -
TE4' following TE0 TEO' stand for timings in the course of time respectively.

Please insert the following paragraphs after paragraph [0031] on page 7:

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic block diagram of a welding system for use in an embodiment according to the invention.

Fig. 2 is a timing chart for an arc start time in an embodiment according to the invention.

Fig. 3 is a timing chart for an arc start time used to compare the embodiment according to the invention with a prior art technology.

Fig. 4 is a timing chart for an arc end time in an embodiment according to the invention.

Fig. 5 is a schematic block diagram of a welding system used in a prior art technology.

Fig. 6 is a timing chart for an arc start time in a prior art technology.

Fig. 7 is a timing chart for an arc end time in a prior art technology.

Please delete the heading “BRIEF DESCRIPTION OF THE DRAWINGS” on page 12, line 16.

Please delete paragraph [0047] beginning on page 12, lines 17-29.

Please delete the heading “DESCRIPTION OF REFERENCE CHARACTERS” on page 12, line 30.

Please delete paragraph [0048] beginning on page 12, line 31, and ending on page 13, line 7.